TABLE 4.—*Visibility with surface wind velocity*

Visibility	5.4 m. p. s. and less: Less than—	Percentage frequency	Per cent of occurrence	More than 5.4 m.p s.: Percentage frequency	Per cent of occurrence
	Miles				
Very bad	200	1	1	[1] 0	[1] 0
Bad	500	2	1	[1] 0	[1] 0
Very poor	1,000	3	1	1	1
Poor	2,000	5	2	4	3
Indifferent	4,000	9	4	10	6
Fair	7,000	37	28	37	27
Good	12,000	92	55	91	54
Very good	30,000	100	9	100	9
	No. of observations, 913			No. of observations, 1,074	

[1] Less than 0.5 per cent.

TABLE 5.—*Visibility with 0.5 or more of sky obscured by low clouds*

	Visibility: Very bad	Bad	Very poor	Poor	Indifferent	Fair	Good	Very good
Less than (meters)	200	500	1,000	2,000	4,000	7,000	12,000	30,000
Per cent of occurrence	1	2	3	6	10	35	38	5
Percentage frequency	1	3	6	12	22	57	95	100

TABLE 6.—*Visibility with low clouds between 250 m. and 1,000 m. altitude*

[From a total of 730 observations]

Visibility less than—		A. M.: Number of observations	A. M.: Percentage frequency	P. M.: Number of observations	P. M.: Percentage frequency
Meters	*Feet*				
200	650	0	0	0	0
500	1,600	1	2	0	0
1,000	3,300	2	5	0	0
2,000	6,600	3	16	4	9
4,000	13,100	7	24	7	25
7,000	23,000	31	80	17	62
12,000	39,400	9	96	17	100
30,000	98,400	2	100	0	100

TABLE 7.—*Visibility with clouds and fog lower than 250 m.*

Visibility	Meters	Feet	A. M.: Number of observations with— Light fog	Dense fog	Low clouds	P. M.: Number of observations with— Light fog	Dense fog	Low clouds
Very bad	200	650	0	3	0	0	0	0
Bad	500	1,600	0	5	0	0	0	0
Very poor	1,000	3,300	3	0	0	2	0	2
Poor	2,000	6,600	2	0	1	1	0	0
Indifferent	4,000	13,100	0	0	6	0	0	0
Fair	7,000	23,000	0	0	5	0	0	1
Good	12,000	39,400	0	0	0	0	0	0

A GRAPHIC AND TABULAR AID TO INTERPRETING CORRELATION COEFFICIENTS

551.501

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A graph and a table are presented herewith, which have been found helpful in correlation studies, because through the use of either of them one may see at a glance what a given value for r is worth for forecasting purposes (*1*).

Suppose we have the value $r = \pm .60$ for a given set of data. Applying the formula $y' = bx - a$, where x is the independent variable, and where $b = \frac{n(\Sigma Xy) - (\Sigma X)(\Sigma y)}{n(\Sigma X^2) - (\Sigma X)^2}$ and $a = \frac{\Sigma y - b\Sigma X}{n}$, (*2*) we obtain the values that y would have if x were the only independent variable. If we now compute the σ of the residuals $(y - y')$ it will be

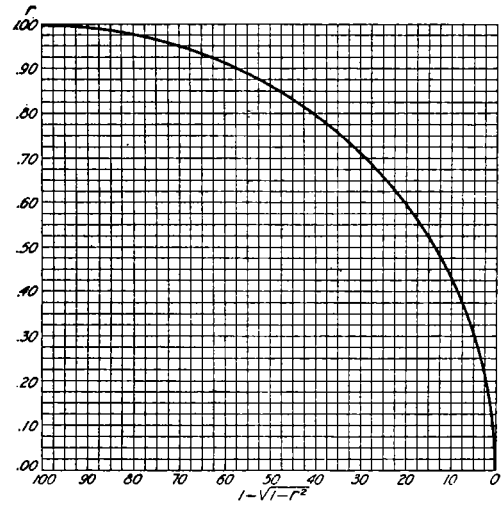

FIG. 1.—Showing value of $1-\sqrt{1-r^2}$, which equals the per cent by which the $\sigma\,(y-y')$ is less than σy, for values of r from 0 to 1

found to be 80% of the σ of y. That is, when $r = \pm .60$, $\frac{\sigma(y-y')}{\sigma y} = 80\%$ of the σ of y, or the $\sigma\,(y-y')$ is 20% less than the σy. But, $\frac{\sigma(y-y')}{\sigma y} = \sqrt{1-r^2}$, and $1 - \frac{\sigma(y-y')}{\sigma y} = 1 - 1\sqrt{1-r^2}$. (*3*)

Plotting the values of $1-\sqrt{1-r^2}$ against the values of r, we get the curve shown in the figure, which is an arc of a circle.

The table may be obtained from the graph or calculated by the formula, % reduction of $\sigma = 1-\sqrt{1-r^2}$, and represents the percentage by which the $\sigma\,(y-y')$ is less than the σy, for all values of r from 0 to 1.00.

TABLE 1.—*Value of $1-\sqrt{1-r^2}$, which equals the per cent by which $\sigma\,(y-y')$ is less than σy, for values of r from 0 to 1.*

r	$1-\sqrt{1-r^2}$	r	$1-\sqrt{1-r^2}$	r	$1-\sqrt{1-r^2}$	r	$1-\sqrt{1-r^2}$
100	100	75	34	50	13	25	3
99	86	74	33	49	13	24	3
98	80	73	32	48	12	23	3
97	76	72	31	47	12	22	2
96	72	71	30	46	11	21	2
95	69	70	29	45	11	20	2
94	66	69	28	44	10	19	2
93	63	68	27	43	10	18	2
92	61	67	26	42	9	17	2
91	59	66	25	41	9	16	1
90	56	65	24	40	8	15	1
89	55	64	23	39	8	14	1
88	53	63	22	38	8	13	1
87	51	62	22	37	7	12	1
86	49	61	21	36	7	11	1
85	47	60	20	35	6	10	1
84	46	59	20	34	6	9	0
83	45	58	19	33	6	8	0
82	43	57	18	32	5	7	0
81	41	56	17	31	5	6	0
80	40	55	16	30	5	5	0
79	39	54	16	29	4	4	0
78	38	53	15	28	4	3	0
77	36	52	15	27	4	2	0
76	35	51	14	26	3	1	0

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